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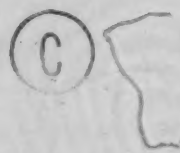

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled SEX ROLES STEREOTYPING IN PRE-SCHOOLERS submitted by LUCAS WANGA in partial fulfilment of the requirements for the degree of MASTER OF EDUCATION.

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ABSTRACT

This study explored the concept of vocational development in pre-school children. It was hypothesized that the vocational maturity of every individual child proceeds systematically from the early years of life onward. Vocational development has been thought to be similar and related to other forms of intellectual growth. This process, it was hypothesized, would be different for boys and girls.

The study involved 36 pre-school children. Eighteen boys and eighteen girls from a white middle-class community day care centre were tested using the Stanford Binet Intelligence Scale Form L-M and the Scale of Vocational Maturity for Pre-schoolers (SVMP). The testing was done in the day care setting. The children involved in the study ranged in age from three to six years. Only children whose parents consented to their inclusion in the study were tested.

The children's intellectual level was established by their mental age score on the Stanford Binet Intelligence Scale. Vocational maturity level was established by scoring the five questions on the Scale of Vocational Maturity for Pre-Schoolers. A questionnaire was used in collecting background information on the child's world of occupational experience.

Analysis of the study showed that a strong relationship existed between children's vocational knowledge and their level of intellectual functioning (r=.72). It was also

established that knowledge of what people do for a living and why they do it increased as children grew older. No difference was observed between the scores obtained by boys and girls.

A comparison of children's scores on the Scale of Vocational Maturity for Pre-schoolers (SVMP) and parental occupation indicated that most of the children in the study were aware of their parents' occupations and expressed the desire to engage in similar jobs as those of their parents, when they grew up.

Most of the children categorized occupation on sextype lines, that is, jobs to be done by men and those to be done by women. No significant differences were established between children of different ages on the sex-role stereotyping item. Nearly all the children associated service and entertaining jobs, that is, house cleaner, nurse, dancer, school teacher, secretary, etc. with females, and technical and managerial jobs, that is auto mechanic, technician, bank manager, accountant, etc. with males.

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Table of Contents

Chapter — Page

I. STATEMENT OF THE PROBLEM 1

A. Definition of Terms 3

II. REVIEW OF RELATED RESEARCH 4

A. Vocational Development of Pre-School Children 4

Sex-role Stereotyping 4

Parental Influence 5

Peer Influence 6

The Influence of T.V. 7

B. The School System as an Agent of Vocational Development in Pre-school Children 8

C. Sex-role Stereotyping and Cognitive Development 9

D. Measurement of Cognitive Development in Young Children: An overview 10

E. Piaget's Theory of Intellectual Development ... 13

F. Hypothesis 15

Hypothesis 1 16

Hypothesis 2 16

Hypothesis 3 16

Hypothesis 4 16

III. DEVELOPMENT OF THE INSTRUMENT AND TESTING METHODOLOGY 17

A. Instruments 17

B. The Stanford Binet Intelligence Scale Form L-M 17

C. Questioning Technique 20

D. Questionnaire 22

E. Scoring Technique 23

Classification of Responses 23

F. Methodology 25

Sample 25

Procedure 26

Data Analysis 26

Design 27

IV. RESULTS AND DISCUSSIONS 31

A. Correlations 31

Correlation between children's chronological age and the Scale of Vocational Maturity for pre-schoolers: questions 1, 2, 3, 4, 5. 32

Correlation between mental age (MA) and Scale of Vocational Maturity for Pre-schoolers, questions 1, 2, 3, 4, and 5. 34

B. Analysis of Variance 35

Analysis of Variance on Question 1: 37

Analysis of Variance on Question 2: 38

Analysis of Variance on Question 3: 39

An Analysis of Variance Between the Age Groups on Question 4: 40

Analysis of Variance Between Age Groups and Question 5: 41

V. DISCUSSION 43

A. Hypothesis 1 43

B. Hypothesis 2 45

C. Hypothesis 3 46

D. Hypothesis 4 46

VI. SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH 49

A. Summary 49

B. Implications 50

C. Recommendations 52

Bibliography 54

APPENDIX A
NEW-MAN KAULS TABLES 65

APPENDIX B
A LETTER OF CONSENT 70

APPENDIX C
BACKGROUND INFORMATION QUESTIONNAIRE 72

APPENDIX D
SAMPLE CLASSIFICATION OF CHILD RESPONSES. 74

APPENDIX E
SVMP SCALE 78

I. STATEMENT OF THE PROBLEM

Since the establishment of the school system in North America, formal education has largely been an enterprise reserved for the years of youth, that is, the years between the ages of six and eighteen (Mihalka, 1974). Those individuals outside this age range received little or no consideration. How they acquired knowledge was a matter of private concern. Generally, they were considered to be either too young or too old to benefit from the school system. Their learning was believed to proceed haphazardly.

The realization that pre-school age is both a sensitive and critical period for learning (Jensen, 1981) has influenced educators to take early childhood education seriously. Studies in early childhood education have pointed out that pre-school children acquire knowledge from the environment in a systematic way (Anderson, 1978; Carpenter, Alethe & Donald, 1978; Eisenberg, Murray, and Hite, 1982; Jordan, 1980; Kuhn, 1978; Lee & Voivodas, 1977; Connor & Serbin, 1977; Shaw, 1981). In examining specific environmental contingencies that influence early childhood learning, Kuhn (1978), Seegmiller(1977), and Tegnoli (1979) investigated sex-role stereotypes in pre-school children. They found that sex-role stereotypes originated in the pre-school years and persisted through the adolescent period. They concluded that the same stereotypes persist and affect an individual's decision-making process in many aspects of life including educational and vocational

choices.

People involved in educating pre-schoolers need to become beware of the environmental forces that influence the development of vocational stereotypes. Since occupational stereotypes are thought to be perceived very early in the child's life, it may be that vocational education should start early as well. The implications of these studies are that educational planners, parents, and teachers who work with pre-schoolers should organize suitable environments for the appropriate vocational development of children.

The present study explores the concept of vocational development in pre-schoolers. It seeks to examine the relationship between vocational development in pre-schoolers and cognitive development, and to find out whether this relationship is different for boys and girls (Herr & Cramer, 1979). The relationship will be examined by comparing the results of two tests: the Stanford Binet Intelligence Scale, Form L-M, and the Scale of Vocational Maturity for Pre-Schoolers (SVMP). Understanding the contingencies influencing vocational development in pre-schoolers will serve two major purposes:

1) *A Research Function* - To enable the testing of theoretical aspects of vocational development in pre-schoolers.

2) *A Practical Function* - To provide a diagnosis of the career development of pre-schoolers

suggesting intervention strategies to enhance vocational development.

A. Definition of Terms

Intellectual Functioning. The term intellectual functioning is used to mean the ability of the child to make practical judgments, initiate activities, and adjust to prevailing circumstances (Sattler, 1982).

Vocational Maturity. The term vocational maturity is used interchangeably with vocational development to mean: the life stage in which the individual actually is, as evidenced by the developmental tasks with which he or she is dealing, in relation to the life stage in which he or she is expected to be in terms of his age. (Herr & Cramer, 1979, p.107).

Sex-role Stereotyping - Sex-role stereotyping is operationally defined in this study as the cultural attribution of job labelling according to sex. The underlying concept in this definition is that children from a very early age are socialized to have expectations about the relationship between sex and occupation.

Pre-schoolers - The term pre-schoolers is used to designate those children ranging in age from birth to six years.

II. REVIEW OF RELATED RESEARCH

In this section, two major concepts are reviewed: the vocational development of pre-school children and the measurement of cognitive development in young children. The review on vocational development examines the following factors: first, sex-role stereotyping and its effect on vocational development; secondly, the setting and interactions in which the stereotypes are transmitted or learned. The setting and interaction include: parental influence and adult modelling, toy preference, peer interaction, free play, level of activity structure, classroom play, teacher-child interaction, and television watching. The measurement of pre-school vocational and cognitive development is reviewed in three sections. To begin with, an overview of the use of intelligence tests with children especially pre-schoolers is presented. Second, the pros and cons of psychological testing are summarized. Finally, the implications, suggestions, and recommendations regarding the testing of pre-schoolers are discussed.

A. Vocational Development of Pre-School Children

Sex-role Stereotyping

Taylor (1978) found that children were able to sex-role stereotype occupations before they entered kindergarten school. He observed that in pre-school children, boys identified with masculine roles and girls with feminine roles. He concluded by stating that:

> Long before they enter school, children are socialized to have certain expectations about the relation between sex and occupation. By kindergarten, they have learned that only those occupations which are extensions of the role of helper are appropriate for women. (p.76)

Taylor's findings were supported by Kuhn, Nash and Brucken (1978) who found sex-role stereotyping in two year old children. They concluded that contingencies that enhance sex-role stereotyping in young children start before they reach the age of two.

Parental Influence

Flex, Fidler, and Rogers (1976) observed that children are exposed from the moment of birth to a multitude of occupational stereotypes. They are influenced by attitudes and behaviors of parents, siblings, and significant others. Children, they stated, are exposed to sex-typed symbolic models of occupations in books, on television and newsprints. May and Ollilia (1981) added that children model parents, teachers, and other people they interact with.

In 1979, Tegnoli found a strong relationship between parental behavior and the sex-role behavior of their children. This supported Seegmiller's (1979) study which demonstrated that sex-role differentiation in three year olds was strongly affected by parental behavior. Boys' behaviors have been found to be motivated by intermittent reinforcement from their fathers, while girls' behaviors are

motivated by continuous father reinforcement (Domash & Balter, 1976). However, many studies (Downs & Langlois, 1977; Fagot, 1979; Flex et al., 1976; Seegmiller, 1977; Shaw, 1981) have found that mothers reinforce and direct appropriate sex-role behaviors in both boys and girls.

The above review of research has provided evidence to support the concept that sex-role stereotyping starts during the early years of childhood. Stereotyping is observable by the time the child reaches two years of age. Sex role attitudes and values are highly influenced by the socialization process, as directed by parents, teachers, and significant others.

Peer Influence

Fagot (1978) studied pre-school children in free play situations to determine the sex-role choices and the consequences such choices have upon play. He found that on a scale measuring Masculine, Feminine, and Androgenous traits, children who chose non-traditional sex-role behvaior patterns paid a price in social consequences for their particular choices. Children in the Low Masculine/Feminine category played alone more often and received significantly fewer positive peer reactions than children in the other three categories. Children in the Androgenous category received less peer reaction than children in the Masculine or Feminine quadrants but more than children in the Low Masculine/Feminine quadrants. Additionally androgenous children received more negative peer feedback than children

in the other three. Fagot's findings were similar to those of Garret & Cunningham (1977) who observed that girls played with feminine and neutral toys, while boys played longer with masculine toys. Bradley (1981) studied pre-school children in play activities in a controlled environment and concluded that boys and girls interacted differently with the toys they played with. Boys preferred masculine toys and girls feminine toys.

In summary, these studies have provided evidence to support the concept that sex-role stereotyping is reinforced in free play by the peer group and is enhanced by the kind of toys children play with.

The Influence of T.V.

Amundson (1978) observed pre-school children watching television and noted that T.V. programs affected children's perceptions. The T.V. programs altered the children's way of attending and monitoring the complex world of occupations. Schechtman (1978) found that T.V. watching altered the children's grasp of the distinction between fantasy and reality. The T.V. programs assigned specific roles to specific characters. Most of these roles were sex-typed. Children watching such shows formed a stereo-type between the roles and the sex of the people who enacted them. Similar findings were observed by Bishop (1982).

These studies support the concept that T.V. watching influences the way children view the world of occupations and how they perceive people engaged in these occupations.

Educational programming which is meant to develop appropriate occupational experience should take into account the influence that T.V. has on young children. To overlook the influence T.V. programs have on the perceptions of pre-schoolers would result in not understanding the kind of experience children bring to the classroom.

B. The School System as an Agent of Vocational Development in Pre-school Children

Etaugh, Collins and Gerson (1975) observed the kindergarten classroom interactions between teachers and children. They found that different contingencies existed for boys and girls which served as reinforcers of sex-role stereotyping behavior. The majority of the teachers of kindergarten schools were females. These teachers reinforced feminine characteristics such as docility, manageability, and compliance. They discouraged masculine behaviors such as aggression, independence, and physical activeness.

Deem (1978) attributed the adjustment problems of boys in the school to this conflict between sex-role and student role. He argued that more boys were held back at the first grade level or referred to extra-behavior adjustment specialists than girls due to this conflict. However, Deem also found that the kindergarten classroom was not an ideal place for girls' vocational development. The emphasis placed on feminine role behaviors, which are no longer considered functional in many work-related fields, was inappropriate

for both boys and girls. Similar classroom behavior was observed by Lee and Voivodas (1977). Despite the desire of many concerned, teachers, parents, and others to eradicate sex-role stereo-types in children, there is enough evidence to suggest that the process is still highly reinforced in children by school-related agencies. Properly the best approach to the elimination of sex-role stereotyping is by carefully study of these agencies and systematically reducing their effect by careful educational planning.

C. Sex-role Stereotyping and Cognitive Development

Connor and Serbin (1977) and Carpenter, Alethe and Donald (1978) studied relationships, 3 to 10 year old, sex-typed activities cognitive development. They showed that masculine stereotyped activities promote certain cognitive skills, particularly visual-perceptual abilities, more than feminine stereotyped activities. They claimed that sex-typed activities cultivate sex differences in personality attributes through the different skills and behaviors that the activities prompt and maintain. Children who had engaged in feminine activities were made to fit into structures created by others instead of establishing their own patterns. Additionally, feminine activities were found to provide fewer opportunities for learning to create one's own structure, and participants developed fewer skills of independence and initiative, were more likely to show compliance, and thus develop preference for occupations that

demanded compliance abilities. In summary, girls are therefore socialized to accept compliance types of occupations, which hold low social status in the North American work force.

D. Measurement of Cognitive Development in Young Children: An overview

A growing awareness of the importance of early childhood experiences resulted in an emphasis on educational programming for the normal and handicapped pre-school aged child (Hodges, Lapides & Phillips, 1977; U.S. Public Law 94-142, 1975; Soeffing, 1974). This created a need for the use of appropriate assessment procedures with these children. However, because there were few instruments available which could accurately assess the pre-school child's current level of intellectual functioning and reliably predict future level of academic achievement, a new problem was created.

The Stanford-Binet Intelligence Scale (Stanford-Binet, 1972) has long been considered one of the best intelligence tests. It was designed for children and adults from the age of two upwards. It is therefore one of the few tests appropriate for pre-school asessment of cognitive function. Stott and Ball (1965) reported that for pre-school aged children, the Stanford-Binet was the most frequently used intelligence test, with over 90% of the respondents in their sample reporting its use. In spite of the widespread

popularity of the Stanford-Binet it harboured some weaknesses which limited its usefulness: (a) the Binet scale yielded only a single profile of abilities; (b) it placed heavy emphasis on verbal skills which was especially inappropriate at the younger ages; (c) the termination of the test after a long series of failures were boring to young children; and (d) the outdated pictures and verbal content made it irrelevant, and therefore, inappropriate. A new test, which avoided these weaknesses while measuring the same types of abilities in young children was needed as an alternative for pre-schoolers.

Determining the child's strengths and weaknesses on the Stanford Binet Intelligence Scale (Terman & Merrill, 1973) was a difficult task. The age-level format of the scale did not permit a simple way of calculating significant differences between those tests that were passed and those that were failed. However, some guidelines were obtained by use of the standard deviation technique (SD) in connection with the child's chronological age (CA) and mental age (MA).

The SD technique was needed because differences between successive year levels did not mean the same thing throughout the scale. For example, the difference between year level II and year level III represented approximately a 50% increase in mental development, whereas the difference between year level X and year level XI represented approximately a 10% increase in mental development. Thus a two-year old child who obtained an MA of 3-0 received an IQ

of 147, while a ten-year old child who obtained an MA of 11-0 received an IQ of 107. The statement "Tests were passed on year levels above the child's CA," (Terman & Merrill, 1973), while literally accurate, did not describe the level of mental functioning represented by the successes. For a two-year old, passing tests "one year above" his or her chronological age may have indicated superior functioning, while a ten-year old, passing tests "one year above" his or her chronological age may have indicate superior functioning. Therefore, the statements concerning the level at which tests were passed needed elaboration.

The use of the SD technique guarded against overinterpretation of minor fluctuations or chance deviations in a child's performance. The SD technique was based on the premise that tests passed within one standard deviation of the child's CA or MA represented normal (i.e. expected) fluctuations in ability. Tests passed or failed within these boundaries, therefore, were not to be considered as indicating strengths or weaknesses.

In spite of the shortcomings observed on the Stanford Binet Intelligence Scale, it was selected for use in this study because it reflected the developmental profile of the pre-school children. A score on the Binet Scale also provided an indicator of the cognitive level of functioning of each child. Secondly, it served as a screening instrument for developmentally delayed children, who were then excluded in the study. No other test was therefore better suited to

this study than the Stanford Binet Intelligence Scale.

E. Piaget's Theory of Intellectual Development

Piaget (1969) originated a hierarchical-stage theory of intellectual development, characterized by qualitative changes in cognitive structures that occur in the period between infancy and adolescence. The qualitative changes and the order of appearance of these structures are considered to be universal and develop through a continuous interaction process between children and their external world. Piaget's theory divided intellectual development into four major periods, the age range of each being characteristic of Western cultures.

The first stage, the sensorimotor period, has been shown to last approximately 1-1/2 to 2 years. It is characterized by learning through active manipulation of the environment, which centres on the infant's own body, then on surrounding objects, and finally on the spatial relationships between these objects and the infant's body.

Secondly, the preoperational stage follows which lasts from approximately age 2 to age 7. This stage is marked by the onset and early development of symbolic thought. The development of mental imagery and language is observed and gradully the child learns to distinguish between images and words, and between objects, persons, and the events they represent.

The third stage, that of concrete operations, lasts from about age 7 to age 11. The child, at this stage, has begun to comprehend the invariance (identity of certain characteristics of objects, such as quantity, weight, and volume) in spite of observed transformations in perceptual aspects (appearance). Internalized and reversible operations are used to add or subtract, multiply or divide, order objects along a continuum, or to classify simultaneously in a number of categories.

Finally, after age 11, children are observed to have reached a stage of formal operations, where they are able to generate hypotheses and explore systematically a number of alternative solutions for a problem. A person at this stage is able to imagine the many concrete and abstract possibilities inherent in any one situation and to transcend the here and now.

All four stages reflect Piaget's definition of intelligence, ie. ability to adapt to the environment through processes of assimilation and accommodation. Individuals relate what they perceive to their existing knowledge and understanding, and develop new cognition structures to accommodate new aspects of the environment. They modify their reference system to fit new perceptions, so that they are congruent with reality. Intelligent behavior thus consists in the resolution of the conflict between using old responses for new situations and acquiring new (or changing old) responses to fit new realities.

Piaget has distinguished four factors that influence cognitive development: (1) biological factors, especially in the interaction between genotype and physical environment during the maturation of the central nervous system; (2) equilibration factors, which allow for the co-ordination of multiple activities resulting in intelligent behavior and which depend on environmental circumstances as well as genetic potential; (3) social factors of interpersonal co-ordination, which operate in the interpersonal exchange among children, caretakers, and peers in the socialization process; and (4) factors of educational and cultural transmission, such as language, education, and the value system of a given society.

The present study is meant to investigate the stage theory as proposed by Piaget in 1970. The children used in the study (age range of 3 to 6 years) fall within Piaget's preoperational stage. It was assumed that all children in the study would perform more or less the same on the intellectual and occupational tasks presented to them. Any difference in test scores would suggest that Piaget's preoperational stage was not necessarily fixed to the age level.

F. Hypothesis

In light of the research findings reported in this chapter, the following hypotheses have been proposed for further investigation.

Hypothesis 1

There will be a direct relationship between test scores obtained by pre-schoolers on the Stanford Binet Intelligence Scale and test scores obtained on the Scale of Vocational Maturity for Pre-Schoolers.

Hypothesis 2

There will be no sex difference in mental age scores obtained on the Stanford Binet Intelligence Scale.

Hypothesis 3

There will be a sex difference in scores obtained on the Scale of Vocational Maturity for Pre-Schoolers.

Hypothesis 4

There will be an age difference in scores obtained on the Scale of Vocational Maturity of Pre-schoolers.

III. DEVELOPMENT OF THE INSTRUMENT AND TESTING METHODOLOGY

In this cahpter, the rational and development of the instruments used in the study are discussed. The methodology and the design for statistical analysis of the data are also presented.

A. Instruments

1. The Stanford Binet Intelligence Scale Form L-M as contained in the manual for the third revision (Terman & Merril, 1973).
2. The Scale of Vocational Maturity for Pre-schoolers. This test was adapted from Begin, 1980; Maisonneauve and Robitail's (1979) Measure of Vocational Maturity (MVM), and from Deloris and Fitzsimmons' (1979) Sex-role Attitude Test.

B. The Stanford Binet Intelligence Scale Form L-M

The Binet Intelligence test was selected for use in this study for the following reasons:

1. It is a widely used intelligence test in Canada as a measure of children's level of cognitive or intellectual function.
2. The Binet is often used as a criterion measure to evaluate the concurrent validity of a variety of other intelligence and achievement tests (Sattler, 1982).
3. The Binet is a good predictor of scholastic

achievement and aptitude.

4. The Binet is designed for use with children ranging from 2 years of age upward.

5. The Binet is extremely well standardized with excellent reliability and adequate validity (Sattler, 1982).

Holland's (1975) classification system was selected for use in the study because it fits the psychological characteristics of workers. The system was used to develop vocational tests, such as Self Directed Search and Vocational Preference Inventory (Holland 1975, 1979). These tests are widely used in both vocational training institutions and in offices of man-power development to assess vocational maturity of students and clients. For these reasons, Holland's (1975) classification system is deemed suitable for use in the study.

In the present study, occupational choices were organized according to Holland's Code (1975). The six factors (Realistic, Intellectual, Artistic, Social, Enterprising, and Conventional) were taken in general terms to represent the categories of occupational groupings which were found within society. Three different occupations were chosen abitrarily to represent each of the six factors. Occupations included:

1. <u>Realistic</u>
    1. Auto Mechanic
    2. Janitor (House Cleaner)

3. Farmer

II. **Intellectual**

1. Technician
2. Nurse
3. Weather Forecaster

III. **Artistic**

1. Film Actor
2. Dancer
3. Singer

IV. **Social**

1. Sports Coach
2. School Teacher
3. School Principal

V. **Enterprising**

1. Bank Manager
2. Advertising
3. Sales Person (Store Keeper)

VI. **Conventional**

1. Accountant
2. Secretary
3. Office Clerk

The occupations used in this study correspond to those adopted by Deloris and Fitzsimmons (1979) in their study which involved elementary school children. For the purpose of the present study, alterations were made in the occupational choice to fit the experience and knowledge of pre-school children. The changes made included choosing occupations which were deemed meaningful to the age of the children and transforming the occupations into picture form. The picture form of the occupations was an appropriate stimulus to children of pre-school age.

C. Questioning Technique

Eighteen different occupations, in picture form, were sequentially presented to each child. The child was asked specific questions regarding the occupations. The responses were recorded accordingly and points were given for every response on a three-point scale basis. At the end of the sequence, the points were added and a mark was assigned to each child.

The questioning and scoring technique was adapted from Begin's (1979) Renewed approach to the Psychology of Vocational Development. Begin developed eleven propositions based on five themes:

1. The problem of vocational development from the point of view of Piaget's cognitive operations.
2. The hierarchical study of the sequence of development. The hierarchical development approach assumes that:

1. Behavior is acquired on operations carried out in an unvarying order;

2. The acquisition of behavior "a" is a necessary, although insufficient, step for acquiring the more complex behavior "b".

3. The vocational problem is one where many variables have been identified as having a role to play in the choice of an occupation involved.

4. The role of meaning and the study of vocational development. The assumption here is that development depends on meanings and, specifically, the ability of man to construct meaning.

5. In referring to vocational psychology and information processing, Miller (1956) made the point that individuals inevitably find themselves faced with a mass of information (signifiers) which is sometimes relevant, other times totally irrelevant. From this information, an individual must select, put in order, organize, and finally consolidate the appropriate parts to obtain an image of his vocational self which will materialize when he engages in an occupation.

From Begin's (1979) five themes presented above, a questionnaire was deductively formulated for use in the present study. Five questions of inquiry regarding pre-school children's knowledge of occupations, work values, sex-role stereotypes, occupational attitudes, and occupational experience were formulated. The questionnaire

was based on selected occupations commonly found within the pre-school children's environment, and were organized to fit Holland's (1975) classification system.

D. Questionnaire

Each child was shown a picture that was representative of an occupation. The child was then told the occupation the picture was representative of, and then asked the following questions:

1. Job description.
What do (the occupation) do?
2. Work value (importance).
Why is it important to have (the occupation)
3. Sex-role stereotyping.
Should (the occupation) be done by men, women, or both men and women?
4. Child's attitude towards the occupation.
Would you like to become (the occupation) when you grow up?
The child was then asked to group the pictures into categories of his or her own choice.
5. Child's experience with people in the occupation.
Have you seen or talked to a person in the (occupation)? If so, where?

E. Scoring Technique

The scoring technique was adapted from Begin's (1979) scoring procedure. Begin developed a scoring procedure in which each subject's reponse was categorized into five levels according to the level of sophistication and accuracy of the response. In this study, the same hierarchical style of categorizing responses was used, however, the levels of responses were reduced to three and were simplified to suit pre-school children.

Each child's response on every question asked was carefully scored and scaled into one of three levels of response. Level one was classified as the lowest response and was given a score of 1, whereas level three was classified as the highest response with a score of 3. At the end, respones were added up and statistically compared with those obtained on the Binet. The performance of boys and girls on both tests were also compared.

Classification of Responses

a) Job description.

Level 1 - The child was only able to name the object or characters in the picture.

Level 2 - The child was able to identify or describe, in occupational terms, the work represented in the picture.

Level 3 - The child was able to identify the occupation represented in the picture and elaborate on what people do in it.

b) Work value.

Level 1 - The child did not associate the occupation with any value.

Level 2 - The child associated the occupation with play activities only.

Level 3 - The child associated the occupation with service, rewards, and pastimes.

c) Sex-role stereotyping.

Level 1 - The child answered, "I don't know".

Level 2 - The child answered men or women.

Level 3 - The child answered both, men and women.

d) Child attitude.

Level 1 - The child was undecided.

Level 2 - The child only answered "Yes" or "No".

Level 3 - The child answered "Yes" or "No" and categorized the occupations into some form of grouping and gave a reason or reasons why.

e) Child experience.

Level 1 - The child answered "No". He or she had not seen or talked to any person in the

occupation.

Level 2 - The child answered "Yes". He or she had only seen one person in the occupation.

Level 3 - The child answered "Yes". He or she had seen and talked to a person in the occupation and stated where.

A sample score sheet is presented in Figure 1, and a sample child response is provided in Appendix A.

F. Methodology

Sample

The sample consisted of thirty-six pre-school children: 18 boys and 18 girls. The children used in the study were those pre-schoolers between the ages of three to six years and were enrolled at McKernan Park Day Care Centre. These were children that had no specific developmental delay. Initial arrangements to carry out the study were made between the researcher and the Director of the Day Care Centre. A questionnaire requesting details of the child's background was sent to the parents of each child in the study, see copy in Appendix C. This background information (languages spoken at home; how long the child had lived in Edmonton; ownership of television or radio; storybooks, newspapers and magazines at home; occupation of parent(s), etc.) were used in the discussion of the results. Included

with the questionnaire was a letter requesting permission from the respective parent(s) to test the child. Only those children whose parents consented to their being included in the study were tested. Those children whose performance on the Stanford Binet Scale indicated mental retardation were excluded from the study.

Procedure

A pilot study using the Scale of Vocational Maturity for Pre-schoolers (SVMP) was conducted during the development of the instrument. Ten children, two from each age group, were tested on the SVMP. The pilot study was deemed necessary for picture item selection and for deciding the level of child responses.

Two rounds of testing were conducted: the first involved the administration of the Stanford Binet Intelligence Scale, the second the administration of the Scale of Vocational Maturity for Pre-schoolers. Both tests were given, one after the other, to every child.

Data Analysis

Three methods were used to analyze the data. Pearson product moment correlations were used to establish the relationship between the children's chronological age and their score on the Scale of Vocational Maturity for Pre-schoolers (SVMP). The correlation method was also used to establish relationship between the children's mental age and their score on the Scale of Vocational Maturity for Pre-schoolers.

One way analysis of variance was employed to compare the results of each age group on the SVMP test. Finally, Kewman Keuls comparisons between ordered means method was utilized to determine age group differences on the SVMP test.

Design

Figures 1, 2, and 3 show the statistical design for analysis of the data collected.

Figure 1 shows the range of the childrens ages as represented in each of the six groups and list of eighteen occupations on which each child was tested.

Figure 2, shows how the data was recorded for each subject on five items. The data indicates the data for boys and girls.

Figure 3, shows the statistical analysis of how the data was to be analyst. One way analysis of variance was used in the study.

Figure 1

Scale of Vocational Maturity for Preschoolers Score Sheet

Age (in years)	3.00 - 3.06						3.07 - 4.00						4.01 - 4.06						4.07 - 5.00						5.01 - 5.06						5.07 - 6.00					
Questions	a	b	c	d	e	Total	a	b	c	d	e	Total	a	b	c	d	e	Total	a	b	c	d	e	Total	a	b	c	d	e	Total	a	b	c	d	e	Total
Occupations:																																				
Auto mechanic																																				
Janitor (House cleaner)																																				
Farmer																																				
Technician																																				
Nurse																																				
Weather forecaster																																				
Film Actor																																				
Dancer																																				
Singer																																				
Sports coach																																				
School teacher																																				
School principal																																				
Bank Manager																																				
Advertising																																				
Sales person (Store keeper)																																				
Accountant																																				
Secretary																																				
Office clerk																																				
TOTAL																																				

Figure 2

Design

GROUP		S V M P T R E A T M E N T S														
	Sex	1			2			3			4			5		
1	Boys	S_1	S_2	S_3	S_1	S_2	S_3	S_1	S_2	S_3	S_1	S_2	S_3	S_1	S_2	S_3
	Girls	S_4	S_5	S_6	S_4	S_5	S_6	S_4	S_5	S_6	S_4	S_5	S_6	S_4	S_5	S_6
2	Boys	S_7	S_8	S_9	S_7	S_8	S_9	S_7	S_8	S_9	S_7	S_8	S_9	S_7	S_8	S_9
	Girls	S_{10}	S_{11}	S_{12}	S_{10}	S_{11}	S_{12}	S_{10}	S_{11}	S_{12}	S_{10}	S_{11}	S_{12}	S_{10}	S_{11}	S_{12}
3	Boys	S_{13}	S_{14}	S_{15}	S_{13}	S_{14}	S_{15}	S_{13}	S_{14}	S_{15}	S_{13}	S_{14}	S_{15}	S_{13}	S_{14}	S_{15}
	Girls	S_{16}	S_{17}	S_{18}	S_{16}	S_{17}	S_{18}	S_{16}	S_{17}	S_{18}	S_{16}	S_{17}	S_{18}	S_{16}	S_{17}	S_{18}
4	Boys	S_{19}	S_{20}	S_{21}	S_{19}	S_{20}	S_{21}	S_{19}	S_{20}	S_{21}	S_{19}	S_{20}	S_{21}	S_{19}	S_{20}	S_{21}
	Girls	S_{22}	S_{23}	S_{24}	S_{22}	S_{23}	S_{24}	S_{22}	S_{23}	S_{24}	S_{22}	S_{23}	S_{24}	S_{22}	S_{23}	S_{24}
5	Boys	S_{25}	S_{26}	S_{27}	S_{25}	S_{26}	S_{27}	S_{25}	S_{26}	S_{27}	S_{25}	S_{26}	S_{27}	S_{25}	S_{26}	S_{27}
	Girls	S_{28}	S_{29}	S_{30}	S_{28}	S_{29}	S_{30}	S_{28}	S_{29}	S_{30}	S_{28}	S_{29}	S_{30}	S_{28}	S_{29}	S_{30}
6	Boys	S_{31}	S_{32}	S_{33}	S_{31}	S_{32}	S_{33}	S_{31}	S_{32}	S_{33}	S_{31}	S_{32}	S_{33}	S_{31}	S_{32}	S_{33}
	Girls	S_{34}	S_{35}	S_{36}	S_{34}	S_{35}	S_{36}	S_{34}	S_{35}	S_{36}	S_{34}	S_{35}	S_{36}	S_{34}	S_{35}	S_{36}

Figure 3

Expected results on one-way ANOVA

1.

Source	SS	df	MS	F	P1
Between groups		n-1=5			
Within groups		N-k=30			

2.

Source	SS	df	MS	F	P1
Between treatment		n-1=4			
Within treatment		N-k=30			

IV. RESULTS AND DISCUSSIONS

In this chapter, the statistical results of the study are presented. The correlation between mental age scores and chronological age is presented first, followed by the correlations between chronological age (CA) and the scores on the Scale of Vocational Maturity for Pre-schoolers (SVMP) and between MA scores and the SVMP scores. Secondly, the correlation between the SVMP and parental occupation is examined and discussed. Thirdly, the analysis of variance between boys and girls on the SVMP is discussed followed by an analysis of variance of the different age groups on the SVMP.

A. Correlations

Correlations between chronological age and mental age

The testing included 36 pre-school children and a correlation of r=.79 was established between the sample of children's chronological age and mental age. This result was consistent with those of other related studies (Merril, 1978, 1982; Sattler, 1982) which found a strong positive relationship to exist between CA and MA especially in normal young children.

TABLE 1

CORRELATION BETWEEN CHRONOLOGICAL AGE AND MENTAL AGE

	Mean	SD	
CA	53.50	10.61	r=0.79
MA	69.79	12.88	

Table 1 above shows a mean difference of 16.29 months between CA and MA, indicating that the children in the study showed average to above average performance on the Stanford Binet Intelligence Scale. All the children in the study were those enrolled in McKernan Park Day Care, which is located in a higher socio-economic community, and close to the University of Alberta. Since most of the children in the study came from within this community, and children from higher socio-economic families are known to perform at above average level on intelligence tests (Sattler, 1982), it was expected that these children would perform at the average or above average level on the Stanford Binet Intelligence Scale.

Correlation between children's chronological age and the Scale of Vocational Maturity for pre-schoolers: questions 1, 2, 3, 4, 5.

A correlation of r=.72 was observed between chronological age and question 1: knowledge of occupatons (see Table 2). This indicated a strong relationship between

age and knowledge. Children increase their knowledge of what people do for a living as they grow older.

TABLE 2

CORRELATIONS BETWEEN CA AND SVMP QUESTIONS 1-5

CA	SVMP	r
CA	Q1	.72
CA	Q2	.66
CA	Q3	.10
CA	Q4	.65
CA	Q5	.56

Similarly, a correlation of r=.66 , r=.66, and r=.56 was observed between CA and question 2, question 4, and question 5, respectively, suggesting that, as these children grow older, their understanding of why people do what they do for a living, their likes and dislikes for the occupations, and their experience with people involved in these occupations, increases.

A low correlation of r=.09 was observed between CA and question 3 indicating that little or no relationship exists between the children's chronological age and their sex-role stereotyping process. That is, a child's age was found not to be related to their opinion of whether men, women, or both sexes should do the occupation.

Correlation between mental age (MA) and Scale of Vocational Maturity for Pre-schoolers, questions 1, 2, 3, 4, and 5.

T A B L E 3

CORRELATIONS BETWEEN MA AND SVMP QUESTIONS 1-5

MA	SVMP	r
MA	Q1	.70
MA	Q2	.61
MA	Q3	.28
MA	Q4	.42
MA	Q5	.58

Table 3 shows a similar relationship between MA and Q1, with a correlation of r=.70. This indicates that a strong relationship existed between the children's intellectual level and knowledge of what people do for a living.

A very low correlation was obtained between MA and question 3(r=.28), indicating little relationship between mental age and sex-role stereotyping. There was a good indication of relationship between MA and question 2 (r=.61) and MA and question 5 (r=.57), but a rather low correlation with question 4 (r=.42).

Since MA correlated highly with CA, a correlation between MA and SVMP was expected to be similar or higher than the correlation between CA and SVMP, indicating that brighter children would be vocationally more mature for

their chronological age, but this was not supported.

B. Analysis of Variance

One-way analysis of variance was used to determine the difference in scores on the scale of vocational maturity for pre-schoolers between boys and girls. The results presented in Table 4 showed that no significant difference was established between the performance of boys and that of girls on the SVMP. This indicated that the vocational development for the children tested was similar for both boys and girls.

T A B L E 4

DIFFERENCE BETWEEN BOYS AND GIRLS ON THE SVMP 1-5

One Way	Analysis of Variance				
Source	SS	DF	MS	F	P
Groups	0.12	1	124.73	0.13	0.72
Error	0.32	34	937.06		
Total	0.32				

T A B L E 5

DIFFERENCES BETWEEN AGE GROUPS ON THE SVMP
What do (occupation) do?

One Way	Analysis of Variance				
Source	SS	DF	MS	F	P
Groups	0.15	5	292.94	9.45	0.00***
Error	0.93	30	31.01		
Total	0.24				

*** p<.001

Analysis of variance was also used to determine the differences in performance for each age group on the SVMP for each of the five questions.

Analysis of Variance on Question 1:

Table 5 shows the results of the analysis of variance between age groups for Question 1: What do (the occupation) do? The results indicated that there was a significant difference between the age groups on Question 1, ($F=9.45$, $p<.05$).

A comparison of group differences using the Newman-Keuls comparison between ordered means see Table 10, see appendix A, showed that there was a significant difference between group 1-2, there was a difference between the performance of the 3-year to 3 year 6 month group and those of older children in the study. The observed differences between groups 1-2, that is between the 3 year to 3 year 6 month and the 3 year 7 month to 4 year suggests that, among the younger children in the study, there was a noticeable difference in the amount of knowledge of what people do for a living. The results showed that between the age of 4 years and 6 years, no significant difference was observed among the groups, suggesting that the children tested at these age groups demonstrated a similar knowledge of what people do for a living.

Analysis of Variance on Question 2:

Why is it important to have (the occupation)? Table 6 shows that a significant difference existed between the groups. This suggested that children's ideas of the value of the occupation society was different for different age groups.

T A B L E 6

DIFFERENCES BETWEEN AGE GROUPS ON SVMP QUESTION 2

Why is it important to have (occupation)?

Analysis of Variance					
Source	SS	DF	MS	F	P
Groups	0.11	5	216.07	4.89	0.002**
Error	0.13	30	44.19		
Total	0.24				

** p<.01

When the groups were further compared using the Newman Keuls Comparison between ordered means, significant differences were found only among the extreme age groups. A significant difference between groups 1-5, 1-6, 2-6, and 3-6, suggested that younger children in the study had less of a clear knowledge of why people do what they do for a

living than older children. The comparison showed that there was no significant difference in children between the ages of 4 years 7 months to 6 years. This implied that children between this age range had a similar idea of why people do what they do.

Analysis of Variance on Question 3:

No significant difference was observed between group performance on Question 3: Who should do (the occupation), man, woman, or both?

T A B L E 7

DIFFERENCES BETWEEN AGE GROUPS ON SVMP QUESTION 3

Who should do (the occupation)

man, woman or both?

Analysis of Variance					
Source	SS	DF	MS	F	P
Groups	0.21	5	42.09	1.20	0.33
Error	0.11	30	35.06		
Total	0.13				

The results in Table 7 suggested that the age range from 3 years to 6 years of age was beyond the age when

sex-role stereotyping occurs.

An Analysis of Variance Between the Age Groups on Question 4:

Would you like to be (the occupation)? showed a significant difference existed between groups. (see Table 11).

TABLE 8

DIFFERENCES BETWEEN AGE GROUPS ON SVMP QUESTION 4

Would you like to become (occupation)

when you grow up?

Analysis of Variance					
Source	SS	DF	MS	F	P
Groups	0.86	5	171.11	6.98	0.000***
Error	0.74	30	24.52		
Total	0.16				

*** p<.001

The results indicated that the children's attitude towards the occupations was significantly different. Newman Keuls comparison between ordered means, showed that a significant difference existed among the age groups. The results showed a significant difference between age groups 1-3, 1-4, 1-5, 1-6, 2-3, 2-4, 2-5, and 2-6, indicating that a difference existed between the younger children and the older ones.

Four-year olds to six-year olds demonstrated stronger likes and dislikes than the younger three-year old to four-year olds.

Analysis of Variance Between Age Groups and Question 5:

In response to the question: Have you seen and talked to (people in the occupation)?, Table 9 shows that a significant difference existed between the groups.

TABLE 9

DIFFERENCES BETWEEN AGE GROUPS ON SVMP QUESTION 5

Have you seen and talked to

(people in the occupation)?

Analysis of Variance					
Source	SS	DF	MS	F	P
Groups	0.67	5	133.87	3.45	0.014*
Error	0.12	30	38.82		
Total	0.18				

* $p<.05$

The results indicated that children in the study showed different experiences with people in the work world. Newman Keuls comparison between ordered means, showed that the major difference was between the youngest and the oldest children. The result showed a significant mean difference between groups 1-4, 1-5 and 1-6. This suggested that older children, 5 years to 6 years, had more experience with people in the occupation than younger children.

V. DISCUSSION

A. Hypothesis 1

The results of this study confirmed the hypothesis that there is a directional relationship between test scores obtained by pre-schoolers on the Stanford Binet Intelligence Scale and those obtained on the Scale of Vocational Maturity for Pre-schoolers. A correlation was observed between mental age and the results of (SVMP): Childrens knowledge r=.70 value r=.61 and contact with people in occupations .58.

These results indicated that as children attain higher levels of cognitive development, their knowledge of what people do for a living, why they do it, and their experience with people in the occupations, increases. From a developmental viewpoint, it would appear that, as the children's experience with people in the occupation increased, their knowledge of what people do for a living, and why they do it, increased. A similar correlation between children's chronological age (CA) and SVMP Question 1 of r=.72, Question 2 of r=.66, and Question 5 of r=.56, indicated an increase in knowledge, value, and experience with occupation. These results are strongly supported in the cognitive developmental literature Piaget, 1969.

A low correlation, r=.28 between mental age and SVMP, question 3: Who should do the (occupation)? and r=.42 between MA and question 4: Would you like to be (occupation) when you grow up, indicated that these children's attitudes

towards the occupations and their sex-stereotypes were not directly related to the level of their intellectual functioning. In other words, their attitudes developed differently as compared to intelligence.

Since most children indicated that they liked the type of occupations their parents or significant others were engaged in, it was concluded that occupational attitudes at this level was a related to exposure. That is, children valued occupation subjectively. "What my dad or mom does, is good because my dad or mom is good", was a typical statement when asked the question, "Why do we have (occupation)?

The question on sex-role stereotyping, question 3, "Who should do the (occupation), men, women, or both?" demonstrated a very low correlation with both chronological age (r=.10) and mental age (r=.28). These low correlations indicated that sex-role stereotyping in these children developed differently from their CA and MA. The results, however, were consistent with those found in the relevant literature, in Chapter Two, that suggested sex-role stereotyping in these children occurs before the age of two years (Eisenberg et al., Kuhn, 1978).

There were some variations between the correlations CA and SVMP and MA and SVMP. The differences (see Table 2 and Table 3) were small and could be accounted for by the fact that it was more difficult to measure children's mental age accurately than their chronological age.

Where a child had no knowledge of the occupation in question, there was a tendency to stereo-type the occuation with the sex of the person portrayed in the picture. For those children who did not sex stereo-type with the occupation, no clear patttern was apparent to rationalize their decision. It appeared that the children who did not sex stereo-type occupations were expressing a lack of experience with people in the occupation. However, it may have also be that these children came from androgynous families where the parents did not have specific stereo-typed occupations assigned to them. Since the present study did not investigate the children's family background for androgyny, it is not possible to varify the influence of androgeny.

B. Hypothesis 2

There is no sex difference in scores obtained on the Stanford Binet Intelligence Scale.

A one-way analysis of variance showed that there was no significant difference in the scores obtained on the Stanford Binet Intelligence Scale by boys and girls. It was shown that the level of intellectual functioning of the children tested was similar for boys and girls. This was consistent with other established researches. Terman and Merril (1978) and Sattler (1982) found no significant difference in IQ scores between boys and girls of all age

ranges. Since this is an already established concept, no further verification was deemed necessary.

C. Hypothesis 3

There is a sex difference between scores obtained on the SVMP.

A one-way analysis of variance revealed that no significant difference existed between the scores obtained by boys and girls on the Scale of Vocational Maturity for Pre-schoolers. The results indicated that the vocational development in these young children was similar for both boys and girls. This was an interesting finding in view of the fact that when these children get older, they are observed to make their occupational choices differently. Studies have pointed out that most of the boys choose masculine occupations and girls feminine types of occupations (Her & Cramer, 1979; Holland, 1975, Shertzer, 1977).

D. Hypothesis 4

There is an age difference in the scores obtained on the Scale of Vocational Maturity for Pre-schoolers.

A one-way analysis of variance showed that there was an age difference of six months in the younger children, age 3 years to 4 years. No significant difference was established in the oler age groups, ages 4 to 6 years, on childrens

knowledge of occupations. The results indicated that younger children had less knowledge of occupations than older ones.

A similar significant differnces were also observed between groups 3 years with 5 and 6 years; 3-1/2 years with 5 and 6 years, and 4 years with 6 years, on job values. This indicated that the older children 5 to 6 years old were more able to place value occupations than the younger children. It was expected in the study that older children would give more reasons why people do what they do.

No significant differences were observed between any age group and sex-role stereotyping. This confirmed previous studies (Eisenberg et al., 1982) that sex-role stereotyping occurs by the age of three years. The implication of this finding is that educational programs aimed at avoiding sex-role stereotyping in these children should start before they reach the age of three years.

Significant differences were observed between the age groups 3 years and 4 to 6 year olds and 3-1/2 years and 4 to 6 year olds in childrens interest in occupation. This indicated that older children, ages 4 to 6 years, demonstrated specific preferences for some occupations. The younger children, 3 to 3-1/2 years, showed little discrimination in choice of particular occupations. Generally, they answered "yes" to every question showing little discrimination or understanding of the question asked. No significant differences were established between age groups 3 years and 4 to 6 years old, experience with

people in the occupation. This indicated that older children, 4 to 6 years, had more experience with people in the occupations than younger children. This was expected to be the case in the study.

VI. SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS FOR FURTHER RESEARCH

A. Summary

This study explored the concept of vocational development in pre-school children. It was hypothesized that the vocational maturity of every individual child proceeds sequentially from the early years of life. This development is related to other forms of intellectual growth and is different for boys and girls. The relationship between vocational maturity and intellectual functioning in pre-schoolers was investigated by comparing the results of two tests: The Scale of Vocational Maturity for Pre-schoolers and the Stanford Binet Intelligence Scale Forms L-M.

Analysis of the study showed that a strong relationship existed between children's vocational knowledge and their level of intellectual functioning with r=.70. It was also observed that knowledge of what people do for a living and why they do it increased as children grew older in age. No difference was established between the scores obtained by boys and those obtained by girls on both tests.

A comparison of children's scores on the Scale of Vocational Maturity for Pre-schoolers (SVMP) and parental occupation, indicated that most of the children in the study were aware of their parents' occupations and expressed a feeling that when they grew up, they would like to do

similar jobs to those their parents were doing.

Most of the children categorized occupations along sextype lines, that is, into jobs to be done by men and those to be done by women. No significant differences were established between children of different ages on the sex-role stereotyping item. Nearly all the children associated service and entertaining jobs, that is, house cleaner, nurse, dancer, school teacher, secretary, etc. with females, and technical and managerial jobs, that is auto mechanic, technician, Bank Manager, Accountant, etc. with males.

B. Implications

This study sought to investigate the vocational development of pre-school children. The objective was to verify the relationship between intellectual and vocational development in young children. It was intended to answer the following questions:

1. Is vocational development related to intellectual development in pre-school children? 2. Does this development differ significantly in boys and in girls? 3. Do all pre-schoolers have the same concepts about occupations? 4. Do what pre-schoolers see and hear about occupations affect their attitudes about the occupations?

From the results of the study, it was established that vocational development proceeds in a similar way to intellectual development. The implications are that programs intended to develop these children vocationally should be organized along similar lines as those intended to develop them intellectually. The results established no significant difference between boys and girls vocational maturity at these early ages. This showed that the children involved in this study, both boys and girls, were influenced in similar ways by the contingencies that enhanced their vocational development. This implied that programs intended to develop these children vocationally should be similar for both boys and girls.

Significant differences were established between 3- to 3-1/2-year olds and 4- to 6-year olds on their knowledge, attitudes, and experience with occupations. The results suggest that younger children, 3 to 3-1/2 years, knew less about occupations, than did 4 to 6 year olds. In addition, they did not discriminate well among those occupations they liked or disliked, and had very little experience with people in the occupatipons presented to them. This showed that vocational maturity in these children was not a one-time decision. Vocational maturity is a developmental process and changed in quality for older children. This study also showed that older children, 4 to 6 years, had more experience with people in the occupations. The implications were that as children grow older and get

exposed to different occupations, their knowledge and attitudes about occupations change. The programs intended to develop these children vocationally should provide a variety of job-related experiences.

Most of the children in the study related the occupations in the study with some relevant experience in the past. Some of these experiences were directly related to their home background, their parents' occupations, occupations of significant others, their play activities, and what they saw on T.V. This, therefore, implied that what these pre-schoolers see and hear from the environment has direct bearing on how they develop vocationally.

In conclusion, this study has many educational implications. Vocational education of these young children should be viewed as a part of cognitive development. Appropriate contingencies should be set up early in their life to enhance proper attitudes towards occupations. These contingencies should be the same for boys and girls. Parents, and other people responsible for caring and educating these children, should be made aware of the contingencies in early childhood that lead them to developing vocational concepts.

C. Recommendations

The following recommendations are made as a result of this study.

1. A study of vocational maturity in pre-schoolers using SVMP items should be carried out with a larger sample of children to verify the results of the present study.
2. Education for vocational maturity for these children should start in pre-school years.
3. The education should be the same for boys and girls.
4. Parents and others involved in caring and educating these children should be made aware of the contingencies that contribute to the vocational development of the children.
5. Further studies in vocational maturity in pre-school should take into account all the possible environmental factors that contribute to the vocational experience of the children, e.g. T.V., newspapers, and parents.
6. A study in pre-school vocational development should investigate the influence of androgeneous parents and conditions on the sex-role stereotyping of young children.

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Appendix A

Table 10

Q Values for Pairwise Differences on SVMP Question 1

Group	Mean Difference	Stand. Error	DF	K	Q
1 - 6	20.50	2.27	30.	6	9.02**
1 - 4	14.67	2.27	30.	5	6.45**
1 - 3	12.17	2.27	30.	4	5.35**
1 - 5	11.83	2.27	30.	3	5.21**
1 - 2	6.83	2.27	30.	2	3.01**
2 - 6	13.67	2.27	30.	5	6.01**
2 - 4	7.83	2.27	30.	4	3.45
2 - 3	5.33	2.27	30.	3	2.35
2 - 5	5.00	2.27	30.	2	2.20
5 - 6	8.67	2.27	30.	4	3.81
5 - 4	2.83	2.27	30.	3	1.25
5 - 3	0.33	2.27	30.	2	0.15
3 - 6	8.33	2.27	30.	3	3.67*
3 - 4	2.50	2.27	30.	2	1.10
4 - 6	5.83	2.27	30.	2	2.57

Significant

** p 0.01

* p 0.05

Table 11

Q Values for Pairwise Differences

on SVMP Question 2

Group	Mean Difference	Stand. Error	DF	K	Q
1 - 6	16.83	2.71	30.	6	6.20**
1 - 5	11.17	2.71	30.	5	4.11*
1 - 4	7.83	2.71	30.	4	2.89
1 - 3	6.33	2.71	30.	3	2.33
1 - 2	2.83	2.71	30.	2	1.04
2 - 6	14.00	2.71	30.	5	5.16**
2 - 5	8.33	2.71	30.	4	3.07
2 - 4	5.00	2.71	30.	3	1.84
2 - 3	3.50	2.71	30.	2	1.29
3 - 6	10.50	2.71	30.	4	3.87*
3 - 5	4.83	2.71	30.	3	1.78
3 - 4	1.50	2.71	30.	2	0.55
4 - 6	9.00	2.71	30.	3	3.32
4 - 5	3.33	2.71	30.	2	1.23
5 - 6	5.67	2.71	30.	2	2.09

Significant

** p 0.01

* p 0.05

Table 12

Q Values for Pairwise Differences

on SVMP Question 3

Group	Mean Difference	Stand. Error	DF	K	Q
1 - 2	7.33	2.42	30.	6	3.03
1 - 4	6.67	2.42	30.	5	2.76
1 - 5	4.17	2.42	30.	4	1.72
1 - 6	3.50	2.42	30.	3	1.45
1 - 3	3.17	2.42	30.	2	1.31
3 - 2	4.17	2.42	30.	5	1.72
3 - 4	3.50	2.42	30.	4	1.45
3 - 5	1.00	2.42	30.	3	0.41
3 - 6	0.33	2.42	30.	2	0.14
6 - 2	3.83	2.42	30.	4	1.59
6 - 4	3.17	2.42	30.	3	1.31
6 - 5	0.67	2.42	30.	2	0.28
5 - 2	3.17	2.42	30.	3	1.31
5 - 4	2.50	2.42	30.	2	1.03
4 - 2	0.67	2.42	30.	2	0.28

Significant

** p 0.01

* p 0.05

Table 13

Q Values for Pairwise Differences

on SVMP Question 4

Group	Mean Difference	Stand. Error	DF	K	Q
1 - 6	12.50	2.02	30.	6	6.18**
1 - 3	10.33	2.02	30.	5	5.11**
1 - 4	8.67	2.02	30.	4	4.29*
1 - 5	8.17	2.02	30.	3	4.04*
1 - 2	0.0	2.02	30.	2	0.0
2- 6	12.50	2.02	30.	5	6.18**
2 - 3	10.33	2.02	30.	4	5.11**
2 - 4	8.67	2.02	30.	3	4.29*
2 - 5	8.17	2.02	30.	2	4.04*
5 - 6	4.33	2.02	30.	4	2.14
5 - 3	2.17	2.02	30.	3	1.07
5 - 4	0.50	2.02	30.	2	0.25
4 - 6	3.83	2.02	30.	3	1.90
4 - 3	1.67	2.02	30.	2	0.82
3 - 6	2.17	2.02	30.	2	1.07

Significant

** p 0.01

* p 0.05

Table 14

Q Values for Pairwise Differences

on SVMP Question 5

Group	Mean Difference	Stand. Error	DF	K	Q
1 - 6	13.50	2.54	30.	6	5.31**
1 - 4	11.00	2.54	30.	5	4.32*
1 - 5	7.33	2.54	30.	4	2.88
1 - 3	6.00	2.54	30.	3	2.36
1 - 2	5.17	2.54	30.	2	2.03
2 - 6	8.33	2.54	30.	5	3.28
2 - 4	5.83	2.54	30.	4	2.29
2 - 5	2.17	2.54	30.	3	0.85
2 - 3	0.83	2.54	30.	2	0.33
3 - 6	7.50	2.54	30.	4	2.95
3 - 4	5.00	2.54	30.	3	1.97
3 - 5	1.33	2.54	30.	2	0.52
5 - 6	6.17	2.54	30.	3	2.42
5 - 4	3.67	2.54	30.	2	1.44
4 - 6	2.50	2.54	30.	2	0.98

Significant

** p 0.01

* p 0.05

APPENDIX B

A LETTER OF CONSENT

Dear Parent,

..... is to participate in a study project of Vocational Maturity. The study involves working with a standardized intelligence scale and a scale of vocational maturity for pre-schoolers. The purpose of the study is for a Masters Degree thesis for Mr. Lucas Wanga, a student at the University of Alberta, in the Department of Educational Psychology. The study will commence on September 14, 1981, continuing for three consecutive weeks.

The objective of the study is to determine children's perception of what people do for a living and how this knowledge contributes towards their decision-making on what people do for a living when they grow up.

Understanding the impact early work experience has on children, will help educators (parents, teachers, administrators, etc.) in providing a more appropriate learning environment that will assist children in achieving their occupational goal in a better and easier way. The study is therefore thought to be useful to both the child and the educators as a whole

The child's record of scores will be treated as strictly confidential. Anonymity will be guaranteed by the

use of code numbers in place of names.

If you have no objection in having your child included in the study, we shall be grateful if you fill out the questionnaire atached and return it to the Daycare by Wednesday, September 14, 1981. Your co-operation is a vital part of this study and is highly appreciated.

APPENDIX C

BACKGROUND INFORMATION QUESTIONNAIRE

1. Name of child ..... Sex .....

2. Date of birth ..... Age .....

3. How long has the child lived in Edmonton? (Please check).

   Less than one year .....

   More than one year .....

Questions #4 to #7 - Circle the letter that is applicable

How many other children are in the family?

   a. One ..... boy/girl

   b. Two ..... boy(s)/girl(s)

   c. More than two ..... boy(s)/girl(s)

5. If more than one, what is the position of the participating child in age?

   a. Youngest b. Middle c. Oldest

6. Which of these communication medias are commonly available for the participating child's use at home?

   a. Storybooks b. Television

   c. Radio d. Newspapers

   e. Magazines

7. What is the present marital status of the participating child's parent(s)?

   a. Married b. Single

   c. Divorced (Separated)

   d. Widowed

Questions #8 to #11 - Fill in the spaces provided

8. Current occupation of the participating child's parent(s):

Father .....

Mother .....

9. Parent(s) occupation in the last two years:

Father .....

Mother .....

10. Parent(s) major hobbies:

Father: 1. .....

2. .....

3. .....

Mother: 1. .....

2. .....

3. .....

11. Language(s) other than English spoken at home:

.....

12. I agree to allow my child to be included in the study.

Signature .....

APPENDIX D

SAMPLE CLASSIFICATION OF CHILD RESPONSES.

Question 1

Examiner: Look at this picture. It is a picture of an auto mechanic. What do automechanics do?

Child

Response level 1

a. I don't know.

b. That is a car and that is a man.

c. The man owns that car.

Response level 2

a. They fix cars

b. That man is fixing his car

c. The man wants to make his car move.

Response level 3

a. I know what they do, they fix cars when they are broken down.

b. When your car cannot move you take it to the garage and the mechanics will fix it for you.

c. Auto mechanics fix all kinds of vehicles cars, buses, even lawnmowers, when they are not working properly.

Question 2

Examiner: Why do we have auto mechanics?

Child

Response level 1

a. I don't know

b. Because it is like their toy

c. Because they like cars

Response level 2

a. Because they fix cars

b. Because he likes his car and wants it to move, so he has to fix it

c. So that he can keep his car fixed

Response level 3

a. Because cars breakdown often, you need auto mechanics to fix them, so as to make them move again.

b. Auto mechanics are experts on cars and we need them to fix our cars when they break down.

c. Because it is their work and they are paid for doing it.

Question 3

Examiner: Who should be an auto mechanic, men, women or both?

Child

Response level 1

a. No response

b. I don't know

Response level 2

a. Boys, because they are good at it.

b. Men, because that is what men should do.

c. Men, because only men are auto mechanics.

Response level 3

a. Boys, but even girls can do it.

b. Both men and women should do it.

c. Men and women can fix cars it the car is theirs or if they work in a garage.

Question 4

Examiner: Would you like to become an auto mechanic when you grow up?

Child

Response level 1

a. I don't know

b. My mom knows what I should do when I grow up

Response level 2

Yes or No

Response level 3

a. Yes, because I am a boy and boys can be auto mechanics.

b. No, I am a girl and girls don't do that.

c. No, that is for girls or no that is for boys.

d. Yes, because I like playing with cars and my dad fixes cars.

Question 5

Examiner: Have you seen or talked to an auto mechanic?

Child

Response level 1

No

Response level 2

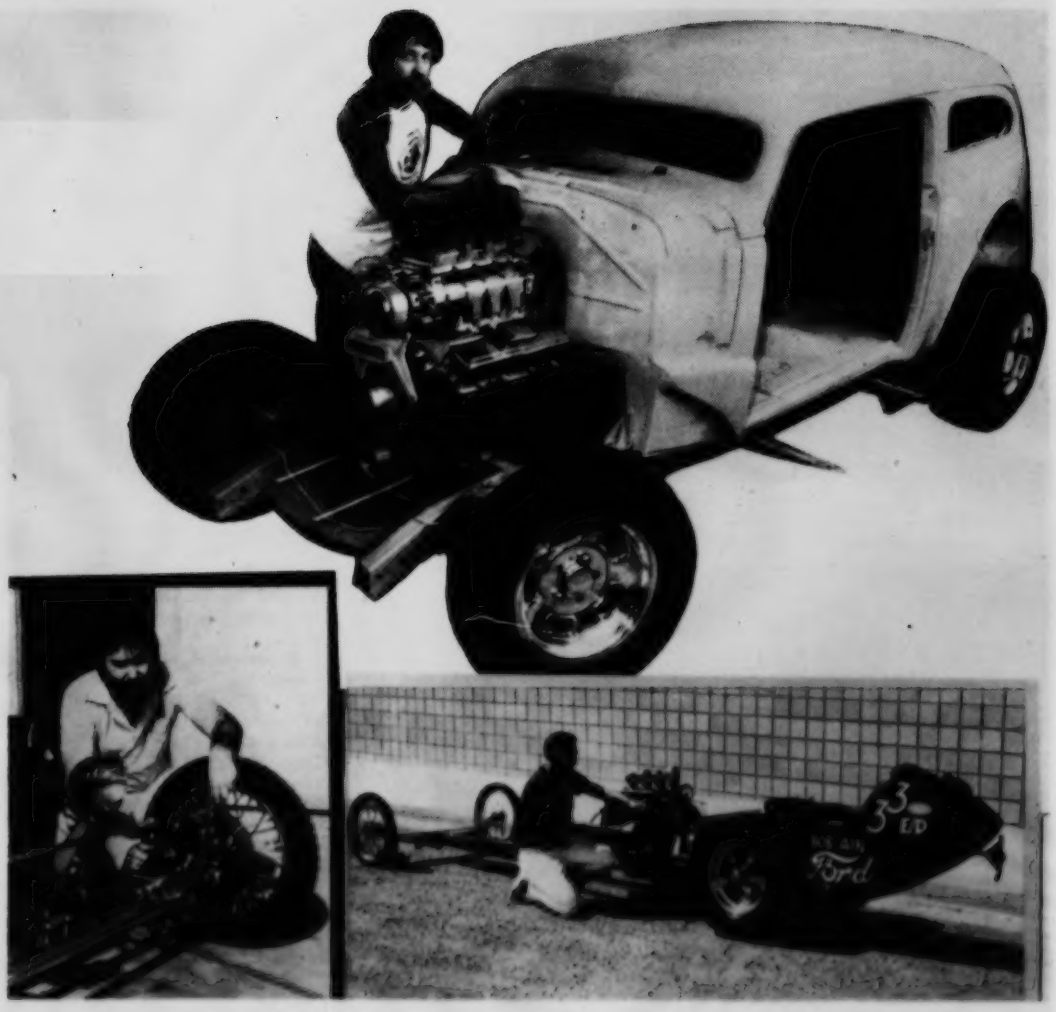
Yes

Yes on TV

Response level 3

a. Yes in the garage

b. Yes my daddy is an auto mechanic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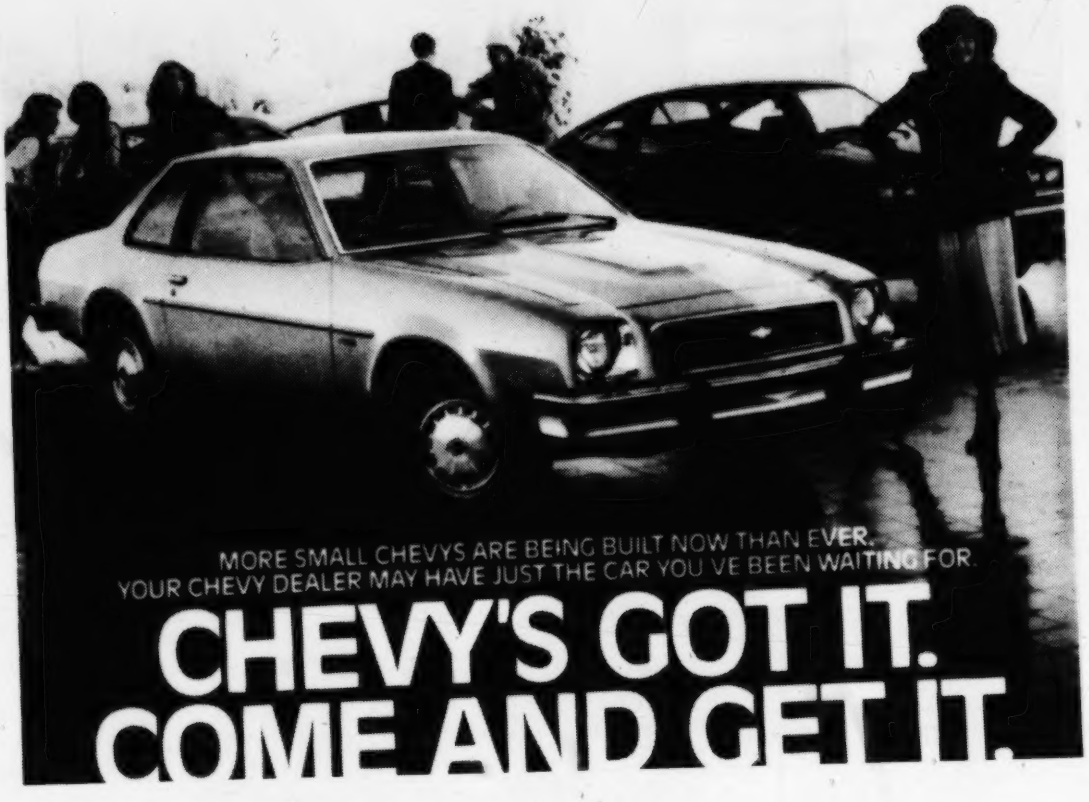
MORE SMALL CHEVYS ARE BEING BUILT NOW THAN EVER.
YOUR CHEVY DEALER MAY HAVE JUST THE CAR YOU'VE BEEN WAITING FOR.
CHEVY'S GOT IT.
COME AND GET IT.